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PHYSICAL TESTING MACHINES AND APPLIANCES

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I

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II

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FOREWORD

In 1977 the United States International Trade Commission initiated its current Summary of Trade and Tariff Information series of informational reports on the thousands of products imported into and exported from the United States. The summaries contain information on product uses, U.S. producers, and customs treatment, and include analyses of the basic factors affecting trends in consumption, production, and trade as well as those bearing on the competitiveness of U.S. industries in domestic and foreign markets.

This supplement is designed to maintain the usefulness of the original summary prepared for this commodity area by providing current consumption and trade statistics and information on significant developments since the initial summary's release. The current statistical tables and tariff schedule extracts contained in the loose-leaf supplement can easily be substituted for the corresponding pages in the original summary.

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SUPPLEMENT TO SUMMARY OF TRADE AND TARIFF INFORMATION ON PHYSICAL TESTING MACHINES AND APPLIANCES, TSUS ITEM 711.25 (PUBLISHED MARCH 1978)

U.S. industry

Although there have been no significant developments in the domestic industry since 1976 in the number of firms, concentration, financial health, and marketing practices, certain changes have occurred in technology and employment.

In the last 5 years, the technology of solid state electronics has been increasingly applied to improve the capabilities of the physical testing instruments covered in this summary. The integration of computers (particularly the minicomputers and microprocessors) with the mechanical physical testing instruments has made possible the design and construction of instruments that automatically control the testing processes with greater accuracy and speed, calculate the test results, and give instant readouts. However, although application of the solid state electronics technology is extensive, the actual testing processes for determining the hardness, compressibility, elasticity, tensile strength, and so forth of materials or articles are still performed mechanically.

The integration of electronic accessories with the mechanical testing instruments has added substantially to the cost of the instruments. This added cost, inflation, and stronger demand for these instruments have contributed to an increase in the value of U.S. shipments from $45.5 million in 1976 to $96.0 million in 1980. Higher production, as well as the growing industry practice of assembling a substantial portion of needed electronic accessories from purchased parts and components, contributed to the growth in employment from 1,100 in 1976 to 1,600 in 1980.

U.S. customs treatment

The column 1 rate of duty applicable to imports of physical testing instruments (see tabulation on p. 3 of original summary) was reduced as a result of negotiations in the Tokyo round of the Multilateral Trade Negotiations (MTN) concluded in 1979. The current statutory language and rates of duty applicable to physical testing instruments (TSUS item 711.25) appear in appendix A. The rate shown in rate of duty column 1 represents the second of eight annually staged reductions, the first of which was effective

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January 1, 1980. These duty modifications, negotiated under the MTN, and the base rate, in effect from January 1, 1972, to December 31, 1979, are also shown in appendix A. The rate shown under the Least Developed Developing Countries (LDDC) rate of duty column, which is the same as the final concession rate, currently applies to imports from LDDC's, which are granted preferential tariff treatment.

U.S. consumption

Apparent U.S. consumption of physical testing instruments increased from $34.6 million in 1976 to $96.0 million in 1980, or by 177 percent (see table 1 of app. B). Although part of the rise in the value of apparent consumption can be attributed to increased labor, material, and energy costs, plus the integration of expensive electronic components, there were substantial real increases in consumption. Industry in general and the aircraft industry in particular, increased their use of computer-based and other sophisticated physical testing instruments to permit faster and more accurate testing. Also contributing to the rise in consumption of these instruments was the shift by the automobile industry to the manufacture of lighter and more gasoline efficient vehicles requiring increased testing of materials and parts.

The ratio of imports to apparent consumption declined from 7.5 percent in 1976 to 5.2 percent in 1979, and then increased to 11.4 percent in 1980. The sharp rise in 1980 is attributable to a single import shipment of a costly, sophisticated, specialty pipe-testing apparatus from Japan.

U.S. production

The value of U.S. producers' shipments rose each year from $45.5 million in 1976 to $96.0 million in 1980, or by 111 percent (table 1). The rise in U.S. production reflected the increased demand for these products.

U.S. trade

U.S. imports increased from $2.6 million in 1976 to $3.7 million in 1979 and reached $10.2 million in 1980 (table 2). The significant increase in imports in 1980 reflected a single import shipment of a costly testing apparatus from Japan, as noted above. During 1976-79, the average annual ratio of imports to U.S. producers' shipments was 5.2 percent. In 1980, it amounted to 10.6 percent. Japan, West Germany and the United Kingdom were the principal suppliers.

U.S. exports averaged $13.7 million during 1976-80 (table 3). However, U.S. exports decreased from $13.9 million in 1977 to $11.6 million in 1978, and then rose to $13.3 million in 1979 and $16.5 million in 1980. The ratio of U.S. exports to U.S. producers' shipments decreased steadily from 30 percent in 1976 to 17 percent in 1980, in part due to increased domestic consumption of domestically produced instruments. Canada has been consistently the largest market, followed by Mexico, West Germany, the United Kingdom, and Japan.

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APPENDIX A

EXCERPTS FROM PART 2, SUBPART D, SCHEDULE 7 OF THE TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1981) AND DUTY MODIFICATIONS UNDER THE MTN

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty LDDC	Rates of Duty 2
			Subpart D. - Measuring, Testing, and Controlling Instruments				
			Subpart D headnotes:				
			1. The provisions of this subpart covered by items 711.04 to 711.88, inclusive, do not apply to electrical measuring, checking, analyzing, or automatically-controlling instruments or apparatus, as defined in headnote 2 below.				
			2. For the purposes of this subpart, the provisions herein (items 712.05 to 712.52, inclusive) for "electrical measuring, checking, analyzing, or automatically-controlling instruments and apparatus" apply only to the following articles: (a) appliances, instruments, apparatus, or machines of kinds described in subpart C of this part or in the provisions of this subpart (subpart D) covered by items 711.04 to 711.88, inclusive, the operation of which depends on an electrical phenomenon which varies according to the factor to be ascertained or automatically controlled; (b) instruments or apparatus for measuring or checking electrical quantities; and (c) instruments or apparatus for measuring or detecting alpha, beta, gamma, X-ray, cosmic, or similar radiations.				
			Balances of a sensitivity of 5 centigrams or better, with or without their weights, and parts thereof; weights suitable for use with such balances and sets of weights containing any such weights:				
A	711.04	00	Jewelers' balances and parts thereof	X	8.6% ad val.	5.7% ad val.	45% ad val.
A	711.08	00	Other	X	11% ad val.	6.6% ad val.	40% ad val.
A	711.25	00	Machines and appliances for determining the strength of articles or materials under compression, tension, torsion, or shearing stress, and parts thereof	X	6.4% ad val.	4.7% ad val.	40% ad val.
			Hydrometers and similar floating instruments; thermometers, pyrometers, barometers, hygrometers, and psychrometers, whether or not recording instruments; any combination of the foregoing instruments; and articles in which one or more of such instruments are incorporated as significant integral parts and which are ordinarily used in the home or office where they are usually hung on the wall, or placed on mantels, shelves, or furniture:				
A	711.30	00	Hydrometers and similar floating instruments, whether or not incorporating thermometers	X	17.9% ad val.	8.4% ad val.	85% ad val.

Note: For explanation of the symbol "A" or "A*" in the column entitled "GSP", see general headnote 3(c).

Physical testing machines and appliances: Pre-MTN rate and staged rate modifications, by TSUS item, 1980-87

TSUS item No.	Pre-MTN rate 1/	Rates of duty 2/ effective with respect to articles entered on and after Jan. 1--							
		1980	1981	1982	1983	1984	1985	1986	1987
711.25--	7%	6.7%	6.4%	6.1%	5.9%	5.6%	5.3%	5%	4.7%

1/ Rate of duty in effect from Jan. 1, 1972, through Dec. 31, 1979.
2/ The symbol "%" indicates "percent ad valorem."

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APPENDIX B

STATISTICAL TABLES

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Table 1. 1/--Physical testing machines and appliances: U.S. shipments, exports, imports, and apparent consumption, 1976-80

Year	Producers' shipments 2/	Exports	Imports	Apparent consumption	Ratio of imports to shipments	Ratio of imports to consumption	Ratio of exports to shipments
	Million dollars				Percent		
1976	45.5	13.5	2.6	34.6	5.7	7.5	29.7
1977	55.0	13.9	2.8	43.9	5.1	6.4	25.3
1978	66.0	11.6	3.6	58.0	5.5	6.2	17.6
1979	80.0	13.3	3.7	70.4	4.6	5.2	16.6
1980	96.0	16.5	10.2	89.7	10.6	11.4	17.2

1/ See table 2 of original summary.
2/ Estimates base on information supplied by industry.

Source: Compiled from official statistics of the U.S. Department of Commerce, except as noted.

Table 2. 1/--Physical testing machines and appliances: U.S. imports for consumption, by principal sources, 1976-80

Source	1976	1977	1978	1979	1980
	Value (1,000 dollars)				
Japan	301	847	685	646	5,297
West Germany	743	806	1,321	844	1,691
United Kingdom	350	351	405	708	1,087
Italy	109	203	216	464	611
Switzerland	181	261	280	466	379
Sweden	5	9	62	80	369
Canada	59	75	33	130	234
France	784	123	181	30	205
All other	116	173	395	376	345
Total	2,648	2,848	3,578	3,743	10,218
	(Percent of total)				
Japan	11.4	29.7	19.1	17.3	51.8
West Germany	28.0	28.3	36.9	22.5	16.5
United Kingdom	13.2	12.3	11.3	18.9	10.6
Italy	4.1	7.1	6.0	12.4	6.0
Switzerland	6.8	9.2	7.8	12.5	3.7
Sweden	.2	.3	1.7	2.1	3.6
Canada	2.2	2.6	.9	3.5	2.3
France	29.6	4.3	5.1	.8	2.0
All other	4.4	6.1	11.0	10.0	3.4
Total	100.0	100.0	100.0	100.0	100.0

1/ See table 4 of original summary.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 3. 1/--Physical testing machines and appliances: U.S. exports of domestic merchandise, by principal markets, 1976-80

Market	1976	1977	1978	1979	1980
	Value (1,000 dollars)				
Canada	1,729	1,994	1,825	2,426	3,524
Mexico	1,172	688	656	708	1,410
West Germany	498	662	735	795	965
United Kingdom	1,190	1,416	898	1,036	900
Thailand	38	69	50	627	866
Nigeria	56	38	6	8	731
Japan	1,082	1,161	711	390	553
Venezuela	254	318	362	378	503
All other	7,454	7,505	6,334	6,910	7,088
Total	13,474	13,851	11,577	13,279	16,539
	(Percent of total)				
Canada	12.8	14.4	15.8	18.3	21.3
Mexico	8.7	5.0	5.7	5.3	8.5
West Germany	3.7	4.8	6.4	6.0	5.8
United Kingdom	8.8	10.2	7.8	7.8	5.4
Thailand	.3	.5	.4	4.7	5.2
Nigeria	.4	.3	.1	.1	4.4
Japan	8.0	8.4	6.1	2.9	3.3
Venezuela	1.9	2.3	3.1	2.8	3.0
All other	55.3	54.2	54.7	52.0	42.9
Total	100.0	100.0	100.0	100.0	100.0

1/ See table 3 of original summary.

Source: Compiled from official statistics of the U.S. Department of Commerce.